

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY WAKNAGHAT

END-TERM EXAMINATION

SUMMER SEM.-(JULY 2016)

B.Tech 7th Sem (ECE)

COURSE CODE: - 10B1WEC734

MAX. MARKS: 50

COURSE NAME: - Fundamentals of Digital Image Processing

COURSE CREDITS: 3

MAX. TIME: 2 Hrs.

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

- Q1.** Discuss the techniques to detect three basic gray-level discontinuities in digital image. (2.5*3=7.5)
- Q2.** Discuss the methods to estimate the degradation function in image restoration. (4)
- Q3.** Discuss the various redundancies present in digital images. (2*3=6)
- Q4.** Discuss the working of various frequency domain filters for periodic noise removal. (6)
- Q5.** How noise can be removed using spatial filters? Discuss their working. (4)
- Q6.** Discuss various types of Thresholding techniques for digital images. (7.5)
- Q7(a).** How does JPEG work? (3.5)
- Q7(b).** Discuss the working of region based segmentation. (4)
- Q8.** Apply Huffman coding procedure to find out the coding efficiency for the following message

Ensemble for $M=2$: $[X] = [X_1 \ X_2 \ X_3 \ X_4 \ X_5 \ X_6 \ X_7 \ X_8]$

$[P] = [0.1 \ 0.25 \ 0.15 \ 0.05 \ 0.15 \ 0.1 \ 0.05 \ 0.15]$ (7.5)